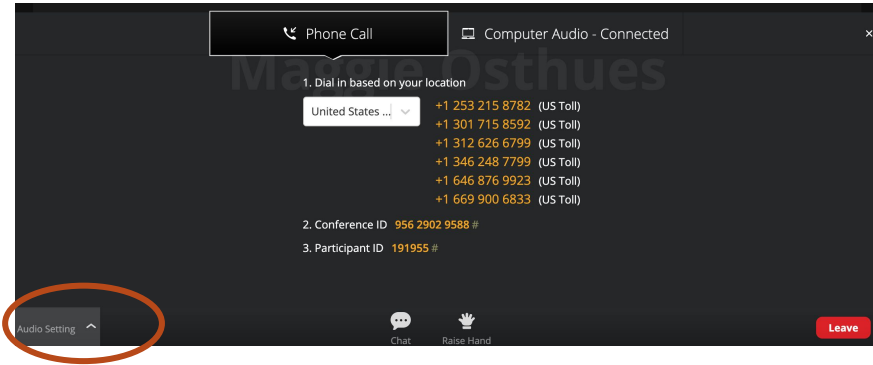


# Tech Reminder for Attendees



**All attendees are automatically muted, with their video off.**

- ✓ If you know you have less than optimal internet connection, please join the meeting via your computer for to view the screen and then opt to join via phone audio to listen.
- ✓ Bring a tech-adaptive mindset!



# Town of Natick Charles River Dam Advisory Committee

Meeting #10 | June 14, 2022



# Agenda

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- 4:00 Welcome, Agenda Review, Introductions
- 4:15 Committee Business & Updates - Facilitation Team
- 4:40 Project Updates - Town Staff
- 5:10 *Break*
- 5:20 Concept Elements for Potential Park Improvements, Halvorson - Tighe & Bond Studio
- 6:00 Public Comment
- 6:20 Wrap up
- 6:30 *Adjourn*

*This meeting is being recorded.*

# Expectations

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**BE CONCISE**

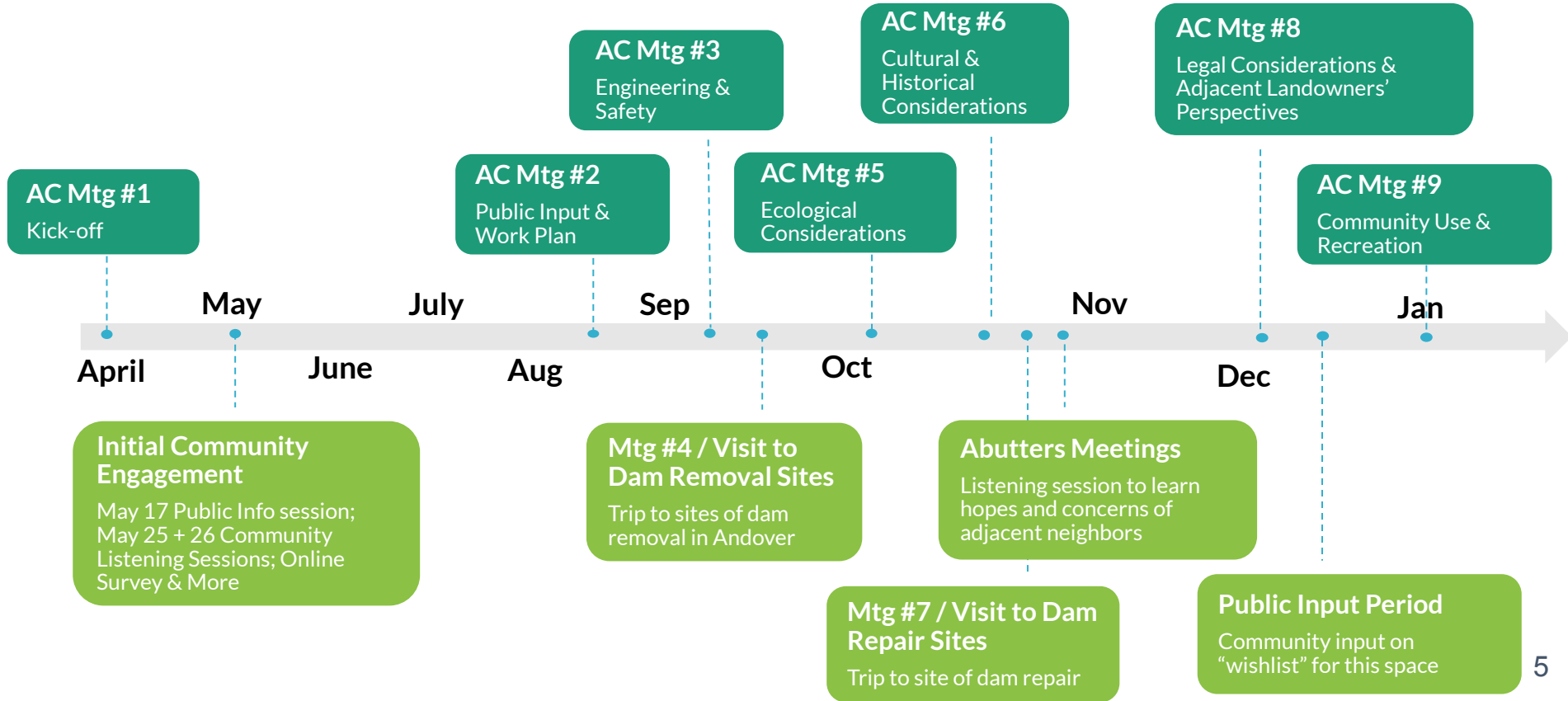


**BE RESPECTFUL**



**BE CONSTRUCTIVE**

# Where We've Been





# Work To-Date

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Visit [natickma.gov/crdam](https://natickma.gov/crdam)  
for meeting recordings, key documents and more

## Engaging the Community

- Hosted three community engagement meetings in May 2021
- Held Q&As with Kennedy and Wilson Middle School students
- Led community input survey in June 2021 (450 responses)
- Surveyed residents on priorities for community use & recreation in Dec 2021 (900 responses)

## Learning About the Options

- Held series of meetings on key issues (safety, ecology, history, abutters, community use)
- Received presentations from six issue experts
- Conducted four site visits (two dam removal; two dam repair)
- Developed abutter FAQ
- Began follow up on key questions

# Organizations and Experts Engaged

## Safety and Flooding

Derek Schipper, P.E., GZA

Jim Guarente, P.E, GZA

Marc Chmura, E.I.T, GZA

## Culture

Charlotte Diamont, Wellesley College

Suzanne Cherau, RPA, Senior Archaeologist,  
The Public Archaeology Laboratory

Kristen Wyman, Indigenous rep,  
Natick Nipmuc Indian Council

David Yancey, Indigenous rep,  
Natick Nipmuc Tribal Council

## Ecology

Nick Wildman, C.E.R.P, MA Division of  
Ecological Restoration (DER)

Dr. Allison Roy, U.S. Geological Survey  
(USGS), MA Cooperative Fish and Wildlife  
Research Unit, UMass Amherst

Rebecca Quiñones, Stream Biologist Project  
Leader, MassWildlife

Emily Norton, Executive Director, Charles  
River Watershed

Elissa Landre, Community Advocacy and  
Engagement Manager, and Heidi Ricci,  
Director of Policy and Advocacy,  
Mass Audubon

## Community Use & Recreation

Mark Jacobson, CEO, Paddle Boston

## Other

Towns of Dover, Sherborn and Wellesley

Christopher D. Haker, P.E., and  
Bryan Gammons, Senior Environmental  
Scientist, Tighe & Bond

Town of Andover

Shawsheen River Watershed Association

Natick Town Counsel

# Feedback Received from Groups/Organizations

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Mass Audubon Broadmoor Wildlife Sanctuary

Charles River Watershed Association

Natick Nipmuc Tribe and Natick Nipmuc Indian Council

Sierra Club Massachusetts

Massachusetts Rivers Alliance

Greater Boston Chapter of Trout Unlimited

Natick Religious Leaders Association

Natick Middle School Students



# What We Heard from Members

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In check in calls with the facilitation team this spring, CBI heard that Committee members in general:

- Appreciate the in-depth exploration of different content areas
- Appreciate the group's respectful discussions
- Are fairly clear on what they individually would like to see happen
- Are looking forward to learning more at these June meetings
- Are disappointed there isn't a viable third option (to keep the trees and the dam)
- Are comfortable with the process to date and timeline for the summer
- Wanted a reminder about how the group's decision making will work

# Our Work Ahead

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Date	Item	Presenter/Leads
June 14 2022	<b>Adv Com Mtg 10: Analysis Period Report Out, part 1: Conceptual Park Designs &amp; Project Updates</b>	<ul style="list-style-type: none"> <li>● Halvorson Studio - Tighe &amp; Bond</li> <li>● Town Staff</li> </ul>
June 27 2022	<b>Adv Com Mtg 11: Analysis Period Report Out, part 2: Preliminary Spillway Design &amp; Costs</b>	<ul style="list-style-type: none"> <li>● Stantec</li> <li>● Town Staff</li> </ul>
June - July 2022	<b>Committee member / Community consultation period</b>	<ul style="list-style-type: none"> <li>● Committee members engaging directly with their neighbors, friends, constituents</li> </ul>
July 19 2022	<b>Adv Com Mtg 12: Deliberation</b>	<ul style="list-style-type: none"> <li>● Committee members</li> </ul>
July 26 2022	<b>Adv Com Mtg 13: Decision Making</b>	<ul style="list-style-type: none"> <li>● Committee members</li> </ul>
August 2022	<b>Recommendation to Select Board</b>	<ul style="list-style-type: none"> <li>● Committee members</li> </ul>

# Committee Decision Making

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**Seek overwhelming agreement on final recommendation:** 75% of voting participants, with each member having 1 vote

**Possible votes:**

- Endorse and support the final recommendation
- They can live with the recommendation
- They cannot live with the final recommendation.
- Those who abstain will not be counted in the final tally

**Final report:** Capture the weight of the group's perspective on the final recommendation, including the key reasons why any who do not support the recommendation are not able/willing to sign on



# The Town's Decision Making Process

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1

Charles River Dam Advisory Committee

*Reviews information to identify options and recommends a path forward*

2

Select Board

*Reviews Committee's work and recommendation  
Chooses a path forward*

*Works with Town Administrator to develop plan to fund preferred option*

3

Town Meeting

*Votes on funding appropriation necessary to implement preferred option*

# Dam Inspection and Safety Rating

# Safety Issues Noted in Inspection Report (December 2021)

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1. Numerous mature trees and woody shrubs and throughout earth embankment
2. Fallen tree on downstream slope
3. Minor erosion with exposed tree roots on embankment crest and parts of downstream slope, likely resulting from pedestrian traffic
4. Minor leakage through blocked, abandoned outlet at downstream toe of earth embankment near the right abutment
5. Minor scarping and some erosion at waterline at upstream slope of earth embankment
6. Deteriorated cast-in-place concrete with cracked, spalled and misaligned sections associated with the low training wall upstream of the left spillway abutment
7. Some loose and missing stones and mortar at stone masonry spillway training walls on both left and right sides of the spillway discharge channel (Charles River)
8. Tree/vegetation growth within joints of left and right stone masonry spillway training wall
9. Slight lean toward the river of the low retaining wall on right side of the spillway discharge area and loss of ground/ground subsidence behind wall
10. Deteriorated cast-in-place concrete with cracked, chipped, spalled sections associated with the low-level outlet slide gate structure
11. Erosion/minor void in concrete along left side of outside concrete wall of outlet structure at waterline
12. Inoperable slide gates at the outlet works
13. Missing upstream warning buoy to deter boats/canoes approaching spillway.



# Recommendations in Inspection Report (December 2021)

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## Maintenance and Minor Repairs

1. Maintain a program of brush removal and grass trimming at the earthen embankment.
2. Remove vegetation which is beginning to re-establish within joints of left stone masonry spillway training wall including, to the extent practicable, removal of associated stumps and root balls.

## Remedial Measures

1. Clear trees and woody vegetation from the embankments, crest and downstream toe area. Additionally, remove all roots/root balls associated with trees and vegetation and backfill resulting voids with compacted sand/gravel;
2. Re-surface the upstream embankment with stone rip-rap protection
3. Re-grade the downstream embankment to a uniform 3H:1V slope. Place proprietary turf reinforcement matting over the crest and downstream slope to address potential for crest overtopping via wave action and erosion of the downstream slope via high backwater conditions
4. Execute a complete replacement of both gates coupled with appropriate re-configuration/restoration of the concrete superstructure surrounding the gate openings
5. Repair/rebuild the upstream and downstream training wall portions of the spillway

# Change to Dam Condition Rating by ODS

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“Significant operational and maintenance deficiencies, no structural deficiencies. Potential deficiencies exist under unusual loading conditions that may realistically occur.”

Source: [Phase 1 Formal Inspection Report Template and Instructions](#)

Requirements per [302 CMR 10.07](#):

- Must be inspected/reported at least every two years

“Significant structural, operation and maintenance deficiencies are clearly recognized for normal loading conditions”

Source: [Phase 1 Formal Inspection Report Template and Instructions](#)

Requirements per [302 CMR 10.03](#) and ODS letter:

- Must be inspected/reported at least every six months
- May be required to be monitored during anticipated rain/runoff events

# Dam Emergency Action Plan

# Emergency Action Plan

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## [302 CMR: DEPARTMENT OF CONSERVATION AND RECREATION 10.11](#)

**High Hazard Potential EAPs shall, at a minimum, contain the following:**

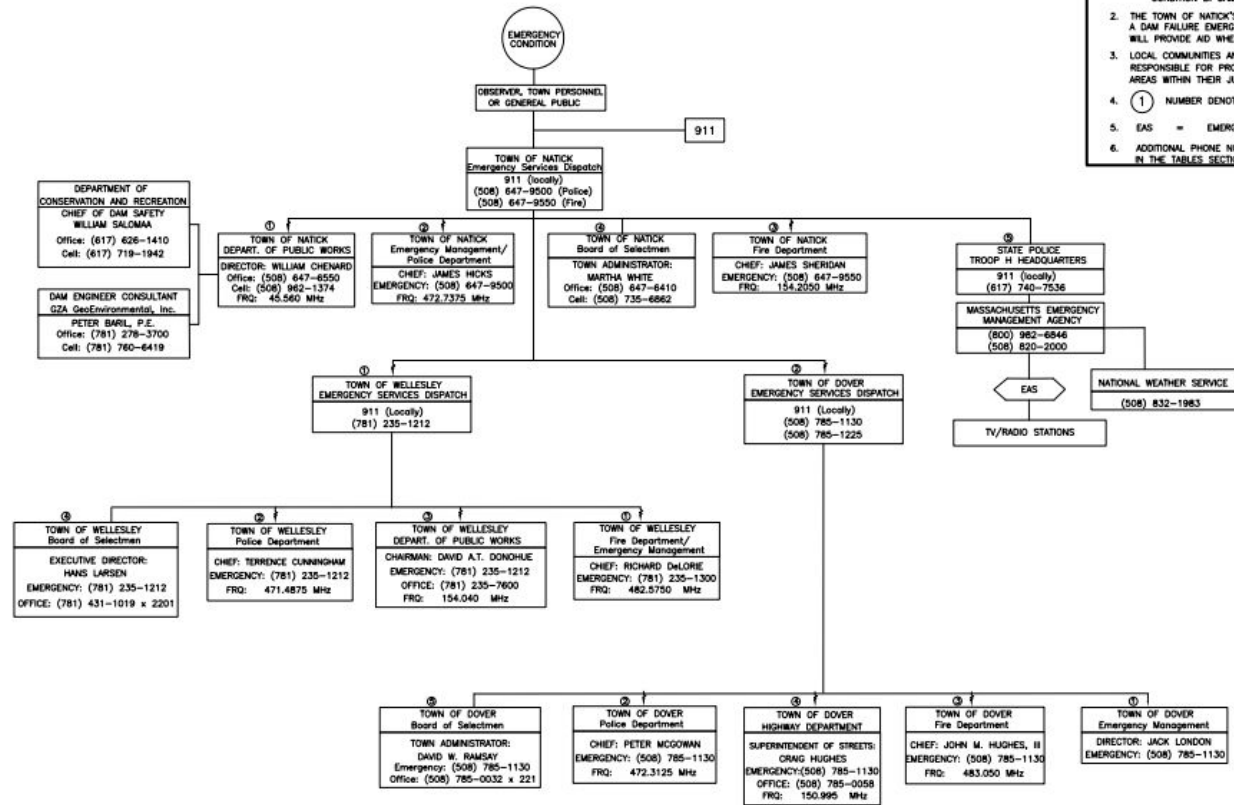
- (a) Identification of equipment, manpower and material available for implementation of the plan;
- (b) A notification procedure, including Flowchart, for informing the local emergency agencies;
- (c) A dam failure inundation map showing the stream which will be flooded, as well as the impacted downstream environment.
- (d) A procedure for warning downstream residents if failure of the dam is imminent, and a listing of addresses and telephone numbers of downstream residents who may be affected by the failure of the dam.

*“The “inundation zone” is the area downstream of the dam that would be flooded in the event of a failure (breach) or uncontrolled release of water, and is generally much larger than the area for the normal river or stream flood event.”*

[FEMA, Living with Dams](#)

# South Natick Dam Notification Flowchart

© 2012 - GZA GeoEnvironmental, Inc. GZA-A-10-000-20-000-1011-A-1011-4-40 MEC-Natick's (South Natick) Emergency (2012) August 24, 2012 - 44 pages Initial revision



## NOTES:

- DAM FAILURE EMERGENCY CONDITION DEFINITIONS:**  
CONDITION A: DAM FAILURE IS IMMINENT OR IN PROGRESS  
CONDITION B: DAM FAILURE SITUATION IS RAPIDLY DEVELOPING
- THE TOWN OF NATICK'S DPW WILL SERVE AS THE INCIDENT COMMANDER FOR A DAM FAILURE EMERGENCY CONDITION. THE NATICK POLICE AND FIRE DEPARTMENTS WILL PROVIDE AD WHEN AN EVACUATION IS NECESSARY.
- LOCAL COMMUNITIES AND THEIR RESPECTIVE EMERGENCY MANAGEMENT DEPARTMENTS SHALL BE RESPONSIBLE FOR PROVIDING EMERGENCY SERVICES TO NOTIFY AND EVACUATE AFFECTED AREAS WITHIN THEIR JURISDICTIONS.
- ① NUMBER DENOTES PRIORITY OF CALL, REGARDLESS OF DAM FAILURE EMERGENCY CONDITION.
- EAS = EMERGENCY ALERT SYSTEM
- ADDITIONAL PHONE NUMBERS AND ALTERNATE CONTACTS ARE PROVIDED IN TABLES 1 TO 5 INCLUDED IN THE TABLES SECTION OF THE EMERGENCY ACTION PLAN (EAP).

2	2012 EAP UPDATE	JEM	JUNE 2012
1	REVISION	BY	DATE

CHARLES RIVER DAM AT SOUTH NATICK  
EMERGENCY ACTION PLAN  
NATICK, MA

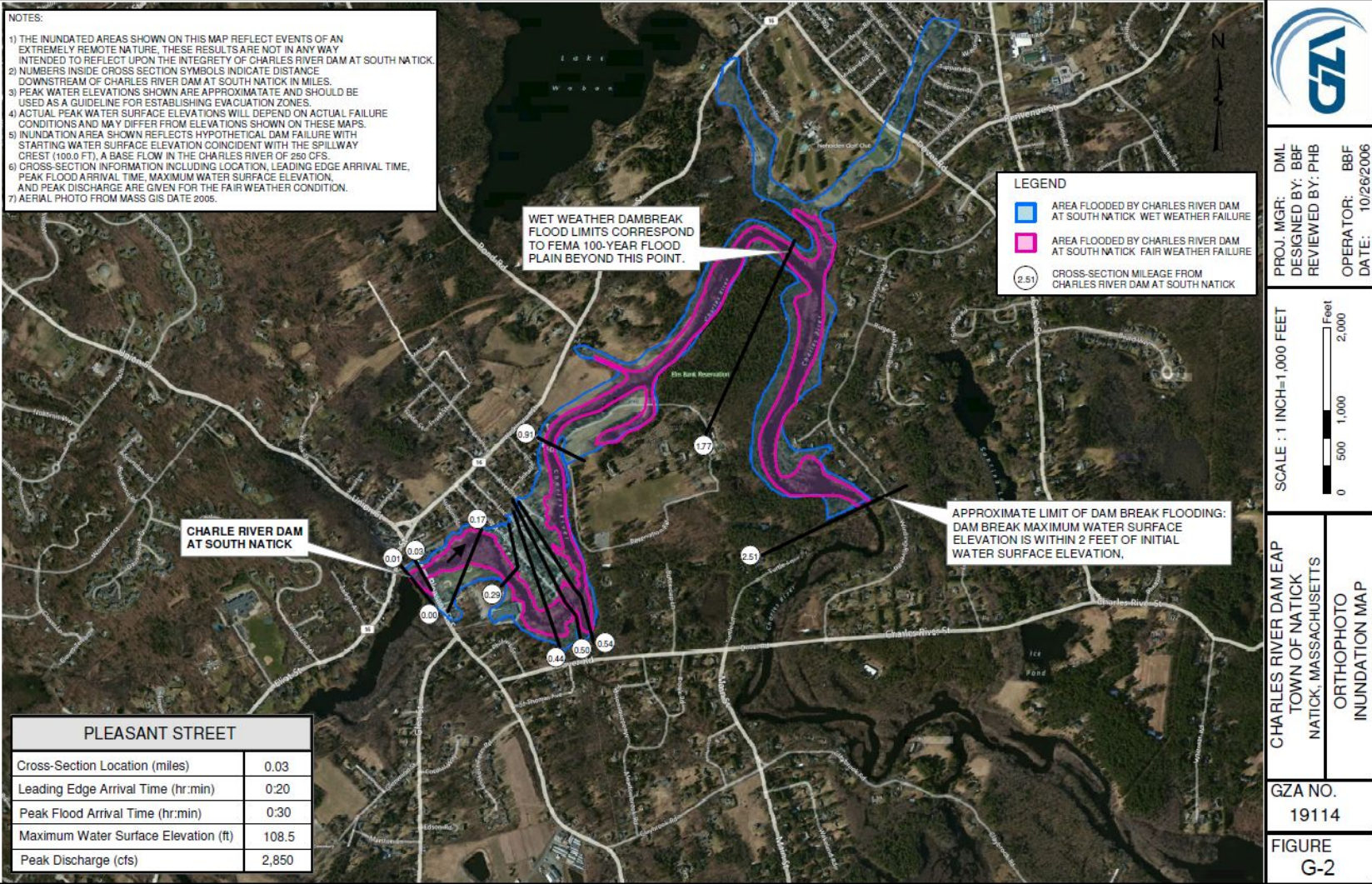
## NOTIFICATION FLOWCHART

PREPARED BY:	GZA GeoEnvironmental, Inc.	PREPARED FOR:	TOWN OF NATICK
PROJ. NO.	KDE	REVIEWED BY:	KDE
DESIGNED BY:	JEM	DRAWN BY:	JEM
DATE:	6/27/2012	PROJECT NO.:	10114.40
		REVISION NO.:	
		CHECKED BY:	PHB
		SCALE:	1"=1'

UNLESS SPECIFICALLY STATED BY WRITTEN AGREEMENT, THIS DRAWING IS THE SOLE PROPERTY OF GZA GEOENVIRONMENTAL, INC. (GZA). THE INFORMATION SHOWN ON THE DRAWING IS SOLELY FOR USE BY GZA'S CLIENT OR THE CLIENT'S RESPECTIVE REPRESENTATIVE FOR THE SPECIFIC PROJECT AND LOCATION IDENTIFIED ON THE DRAWING. THE DRAWING SHALL NOT BE REPRODUCED, COPIED, OR USED IN ANY MANNER OR FOR ANY OTHER PURPOSE OR PROJECT, WITHOUT THE WRITTEN PERMISSION OF GZA. THE USER OF THIS DRAWING SHALL BE RESPONSIBLE FOR ANY AND ALL SUCH OTHER PARTIES' SOLE RISK AND WITHOUT ANY RISK OR LIABILITY TO GZA.



# South Natick Dam Inundation Map





# Risk to Properties in Inundation Zone

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	Number of Properties	Assessed Property Value
Fair and Wet Weather Inundation Zone	68	\$141,530,700
Wet Weather Only Inundation Zone	80	\$434,917,200
Total Inundation Zone	148	\$576,447,900

Source: May 2022 Assessor data from [Natick](#), [Wellesley](#) and [Dover](#) for addresses identified in South Natick Emergency Action Plan

***If the dam is repaired, the risk of inundation remains.***

***If the spillway is removed, the risk of inundation is eliminated.***



# Risk of flooding remains similar in either scenario

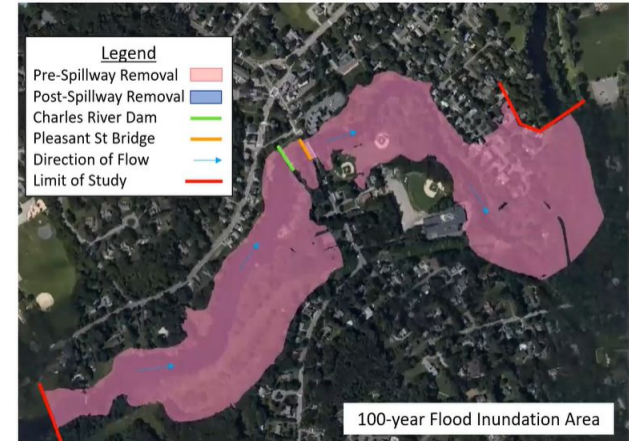
[Per GZA's September 2021 presentation:](#)

The Charles River Dam in South Natick is a “run of the river” dam and provides no flood protection.

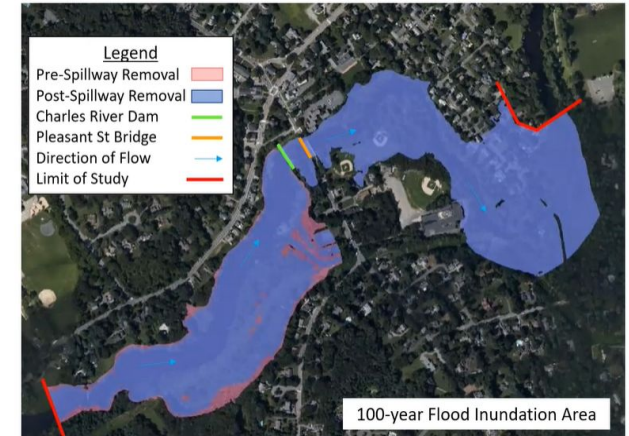
***Downstream flood risks would remain the same in either option.***

***Upstream flood risks would be marginally reduced if the spillway was removed.***

Flooding



Flooding



# Fish Passage



# MassDEP Notification

- In May 2022, an updated policy on diadromous (fish that live in saltwater but feed/breed in freshwater) Fisheries Stream Management
- Natick connects via the Charles River to 2 diadromous fisheries in Wellesley
- Currently, our fish ladder does not allow easy passage by diadromous fish

## **Wetlands Program Policy: Diadromous Fisheries Stream Management**

**Effective Date:** April 25, 2022

**Wetlands Program Policy 22-01** (BWR/WP 22-1)

**Program Applicability:** All Boston and Regional BWR Programs, Municipal Conservation Commissions, and Division of Marine Fisheries Diadromous Fisheries Program.

**Supersedes Policy:** None

**Approved by:** Stephanie Moura, Director - Wetlands and Waterways Division

**Purpose:** This policy sets forth the Department's standards for stream maintenance associated with Massachusetts Division of Marine Fisheries (DMF) sponsored diadromous fisheries.

### **Statutory and Regulatory Background**

**MGL c. 131, s. 40:** Wetlands Protection Act ("Act") and 310 CMR 10.00.

**M.G.L Chapter 130 §19** Marine Fish and Fisheries

### **Diadromous Fisheries Management**

MassDEP supports the maintenance of anadromous/catadromous (diadromous) fish runs which are significant to the protection of marine fisheries, an interest protected under the Wetlands Protection Act (M.G.L Chapter 131 §40). The DMF is authorized pursuant to M.G.L Chapter 130 §19 to maintain passageways for diadromous fish in the Commonwealth of Massachusetts. DMF routinely provides related guidance to property owners and municipalities on the proper methods for maintenance of stream channels to allow safe and efficient fish passage.

# MGL Part 1, Title XIX, Chp. 130, Sec. 19

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“For the purpose of providing suitable passage for salt water fish coming into fresh water to spawn, the director or some person thereunto authorized by him in writing, may ... (2) examine all dams and other obstructions to such passage in brooks, rivers and streams, the waters of which flow into coastal water, where in his judgment fishways are needed, and (3) shall determine whether existing fishways, if any, are suitable and sufficient for the passage of such fish in such brooks, rivers and streams or whether a new fishway is needed for the passage of fish over such dam or obstruction; and he shall prescribe by written order what changes or repairs, if any, shall be made therein, and where, how and when a new fishway shall be built, and at what times the same shall be kept open and shall serve a copy of such order upon the person maintaining the dam or other obstruction.”

## To summarize:

- If we repair the dam, the Town may be required by the state to **replace the existing, unsuitable fish ladder** with a new fish ladder.
- This would **add cost and time** to the project, as **additional permitting** associated with a new fish ladder may be required.
- With a new fish ladder comes **required documentation of each fish run season**, which is also an additional ongoing cost.



# Potential Park Improvements

# Reminder

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*The concept elements presented today are **preliminary, illustrative and very much subject to change.***

*The concept elements frame what the site could look like **in either scenario.***

*Park improvements (in either scenario) would **follow a separate process:**  
Funding, design work, and public engagement*



# Concept Elements for Dam Repair and Spillway Removal Scenarios

*Presentation by Iris Yung-Ching Lin  
Halvorson / Tighe & Bond Studio*



# Reimagine Charles River Dam Area South Natick, MA

Presented by Iris Lin

Senior Landscape Architect  
Halvorson | Tighe & Bond Studio

Charles River Dam Advisory Committee  
June 14 2022

**HALVORSON**  
Tighe&Bond STUDIO



# **WHAT ARE CHERISHED:**

- HISTORICAL CONTEXT**
- SOUND OF RIPPLING WATER**
- PICTURESQUE SETTING**
- A PLACE CLOSE TO CHARLES RIVER**
- A PLACE FOR REFLECTION**
- OUTDOOR RECREATION OPPORTUNITIES**
- MATURE TREE GROVES**



# **WHAT ARE MISSING**

- ACCESSIBILITY**
- SAFETY**
- PHYSICAL ACCESS TO THE RIVER**
- OPPORTUNITIES FOR NEW PROGRAMS**
- LIMITED USABLE OPEN SPACES**
- CELEBRATING THE RICH AND EXTENSIVE HISTORY**
- ECOLOGICAL RESOURCES AND HABITAT**





**EXISTING VIEW- SOUTH NATICK DAM PARK**





**EXISTING VIEW- SOUTH NATICK DAM PARK**





**EXISTING VIEW- GROVE PARK**





**EXISTING VIEW- GROVE PARK**





**ACCESS TO THE RIVER**





**CREATE NEW DESTINATIONS AND OPPORTUNITIES**





**PRESERVE AND CREATE NEW OPEN SPACES**





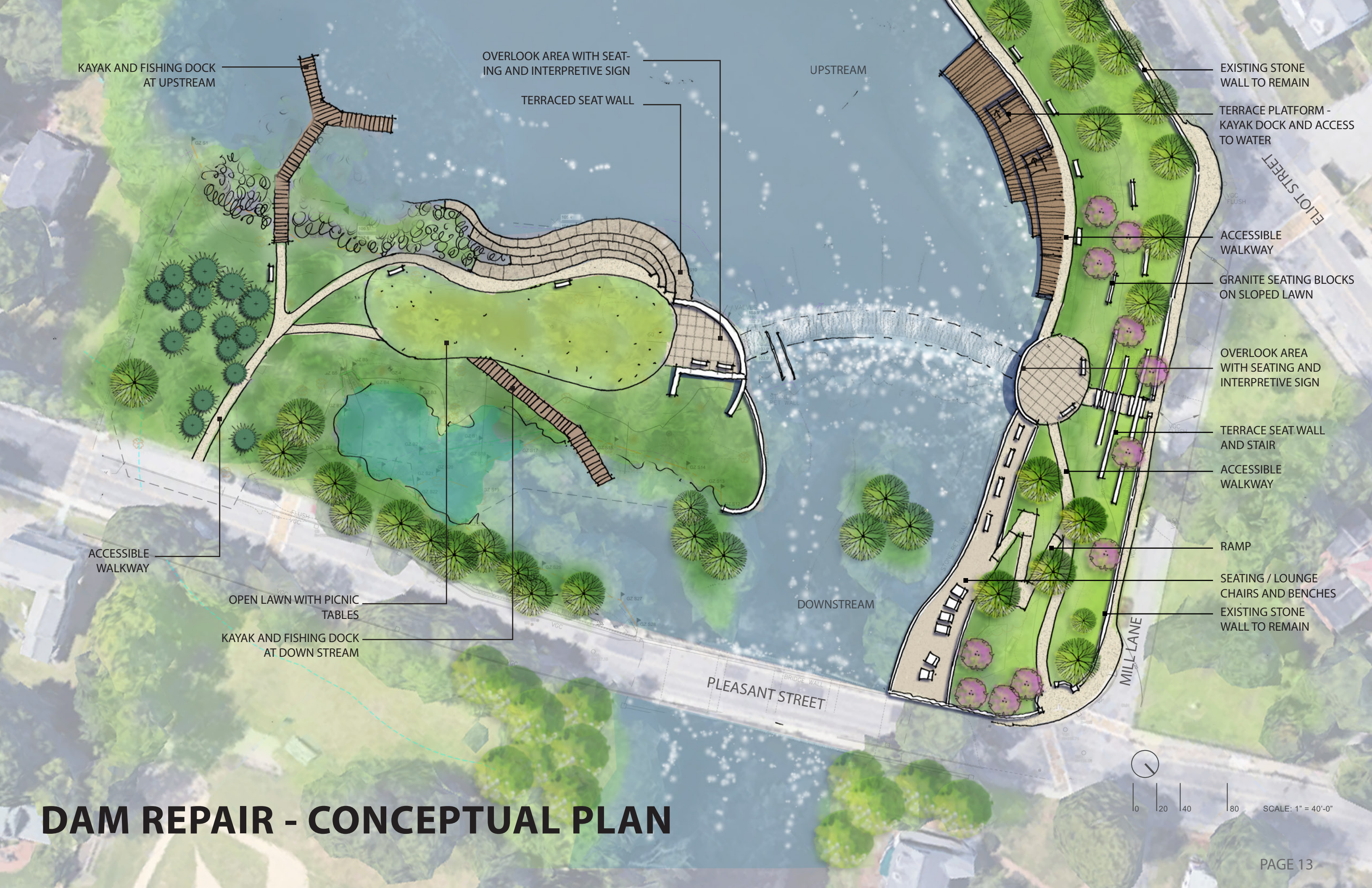
**INTEGRATE CLIMATE RESILIENCE STRATEGIES**





# DAM REPAIR





KAYAK AND FISHING DOCK  
AT UPSTREAM

OVERLOOK AREA WITH SEAT-  
ING AND INTERPRETIVE SIGN

TERRACED SEAT WALL

UPSTREAM

EXISTING STONE  
WALL TO REMAIN

TERRACE PLATFORM -  
KAYAK DOCK AND ACCESS  
TO WATER

ACCESSIBLE  
WALKWAY

GRANITE SEATING BLOCKS  
ON SLOPED LAWN

OVERLOOK AREA  
WITH SEATING AND  
INTERPRETIVE SIGN

TERRACE SEAT WALL  
AND STAIR

ACCESSIBLE  
WALKWAY

RAMP

SEATING / LOUNGE  
CHAIRS AND BENCHES

EXISTING STONE  
WALL TO REMAIN

ACCESSIBLE  
WALKWAY

OPEN LAWN WITH PICNIC  
TABLES

KAYAK AND FISHING DOCK  
AT DOWN STREAM

DOWNSTREAM

PLEASANT STREET



0 20 40 80

SCALE: 1" = 40'-0"

# DAM REPAIR - CONCEPTUAL PLAN





**DAM REPAIR - PRECEDENT IMAGES**





**DAM REPAIR - VIEW OF DAM AND GROVE PARK**





**DAM REPAIR - VIEW OF SOUTH NATICK DAM PARK**





**DAM REMOVAL -**





NATURALIZED RIVER EDGE

ACCESSIBLE BOARDWALK

ACCESSIBLE WALKWAY

ELEVATED WOOD DECK WITH SEATING

KAYAK RAMP AT DOWN STREAM

UPSTREAM

DOWNSTREAM

PLEASANT STREET

KAYAK DOCK AT UPSTREAM

EXISTING STONE WALL TO REMAIN

NATURALIZED EDGE PLAZA SPACE WITH TABLE AND CHAIRS

SANDY PLAY AREA

OVERLOOK AREA WITH SEATING AND INTERPRETIVE SIGN

STAIR

ACCESSIBLE WALKWAY

TERRACED SEAT WALL

SLOPED LAWN

EXISTING STONE WALL TO REMAIN



0 20 40 80

SCALE: 1" = 40'-0"

# DAM REMOVAL - CONCEPTUAL PLAN





**DAM REMOVAL - PRECEDENT IMAGES**





**DAM REMOVAL - VIEW OF DAM AND GROVE PARK**





**DAM REMOVAL- VIEW OF SOUTH NATICK DAM PARK**



**QUESTIONS & COMMENTS ?**





# Committee Discussion

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- What questions do you have for the Halvorson team?
- Do these concepts align with the needs/desires you heard from Natick community members?
- How could these concepts inform your deliberations about the future of the dam?

# Public Comment

Click the “Raise Hand” button in your toolbar or \*9 if you are dialed in on the phone

Please keep your comments to 2-3 minutes

# Next Steps

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- **Planning team**
  - Work with Stantec to finalize presentation for June 27 meeting
  - Gather additional data on costs for all methodologies
  - Expand FAQ to summarize learnings from meetings to-date and new technical work (may incorporate video from meeting recordings)
- **Advisory Committee members**
  - Provide outstanding questions to CBI
- **CBI**
  - Post meeting recording
  - Draft meeting summary

# Thank you

For more information on this project, please visit:

[natickma.gov/crdam](https://natickma.gov/crdam)